

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-096461

(43)Date of publication of application : 04.04.2000

(51)Int.Cl.

D06P 5/13
D06M 11/00
D06M 13/432
D06Q 1/02

(21)Application number : 10-268143

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(22)Date of filing : 22.09.1998

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(54) DYE-DISCHARGING AGENT FOR SYNTHETIC FIBER MATERIAL, DISCHARGE OF DYE AND DYE-DISCHARGED SYNTHETIC FIBER MATERIAL

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a dye-discharging agent by adding guanidine carbonate and an adsorbing substance, and to provide a method for discharging the dye of a synthetic fiber material, capable of giving the dye-discharged fiber material having excellent designability without discoloring a dye in a dye paste by printing the synthetic fiber material with a printing paste containing the dye-discharging agent and subsequently thermally treating the printed fiber material.

SOLUTION: This dye-discharging agent for synthetic fibers contains guanidine carbonate and an adsorbing substance, such as activated carbon. The method for discharging the dye of a synthetic fiber material comprises printing the synthetic fiber material such as polyester yarns, polyamide yarns or the blend of the yarns with other yarns, with the printing paste and subsequently thermally treating the printed fiber material in a dry or wet state. The printing paste is prepared by adding the dye-discharging agent to an original paste so as to contain the guanidine carbonate in an amount of 0.1-50.0 wt. % based on the printing paste.

LEGAL STATUS

[Date of request for examination]

23.04.1999

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]	2977546
[Date of registration]	10.09.1999
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

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CLAIMS

[Claim(s)]

[Claim 1] The discharging agent for synthetic system textile materials containing guanidine carbonate and the adsorbent matter.

[Claim 2] The discharge processing approach of the synthetic system textile materials using the discharging agent containing guanidine carbonate and the adsorbent matter.

[Claim 3] The discharge processing approach of the synthetic system textile materials using the print paste containing guanidine carbonate and the adsorbent matter.

[Claim 4] The approach according to claim 2 or 3 by which guanidine carbonate is contained in 0.1 - 50.0% of the weight of an amount in a print paste.

[Claim 5] The method according to claim 2 to 4 of printing a print paste and subsequently performing dry heat treatment or moist heat treatment.

[Claim 6] The approach according to claim 2 to 5 synthetic system textile materials consist of a bicomponent fiber of polyester fiber, polyamide fibers or these fiber, and other fiber.

[Claim 7] Synthetic system textile materials by which discharge processing was carried out using the discharging agent containing guanidine carbonate and the adsorbent matter.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the discharging agent for synthetic system textile materials and the discharge processing approach of having the **** effectiveness, and the synthetic system textile materials by which discharge processing was carried out.

[0002]

[Description of the Prior Art] In discharge processing of polyester fiber, by using sodium carbonate, potassium carbonate, the third phosphoric-acid potash, a sodium hydroxide, sodium silicate, the third sodium phosphate, etc. as a discharging agent, after carrying out print adhesion, the method of heat-treating and making a discharge pattern form is learned for discharge processing using alkali chemicals.

[0003] However, since alkali chemicals are used so much in order to restrict the sizing agent which can be used by the approach using an alkali-metal hydroxide to the existing alkali-proof thing and to acquire desired effectiveness, effect arises to the stability and the fluidity of a print paste, problems, like the sharpness in the mold case is missing arise, and a satisfactory print shank is not acquired. Moreover, in case a print paste is made to contain a color and the polyester fiber of the print section is dyed, when the print paste using the discharging agent of the conventional alkali-metal hydroxide is made to contain a color, there is a problem that a color discolors and the hue to satisfy is not acquired.

[0004] Furthermore, the discharge colored glue to print has many dangerous things, especially in using an alkali-metal hydroxide for discharge colored glue, the conventional approach described above takes [colored glue] special cautions in the case of an activity.

[0005]

[Problem(s) to be Solved by the Invention] This invention by stopping use of the alkali chemicals in the conventional alkali discharge Lose limitation of a sizing agent, and discoloration of the color in a print paste, offer formation of the shank which has a clear hue, and the very sharp pattern in the mold case of a print pattern, and by in-addition having the **** effectiveness It is made for the purpose of offering the discharging agent and the discharge approach of manufacturing extremely discharge processing composition system textile materials excellent in design nature safely of having a very sharp concavo-convex pattern in the mold case in a piloerection article.

[0006]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, as a result of repeating examination wholeheartedly, by using guanidine carbonate as a discharge component, this invention person could solve the conventional trouble and completed this invention for the ability also of the **** effectiveness to be given further based on a header and this knowledge. That is, this invention offers the synthetic system textile materials by which discharge processing was carried out using the discharging agent containing the discharge processing approach, the guanidine carbonate, and the adsorbent matter of the synthetic system textile materials using the discharging agent containing the discharging agent for synthetic system textile materials, the guanidine carbonate, and the adsorbent matter containing guanidine carbonate and the adsorbent matter.

[0007]

[Embodiment of the Invention] Guanidine carbonate and the adsorbent matter are contained as a discharge component, what mixed guanidine carbonate and the adsorbent matter during the mixture of guanidine carbonate and the adsorbent matter and a paste paste is mentioned as that gestalt, for example, and the discharging agent of this invention can be used as a print paste by blending this discharging agent with a stock paste. Although not limited especially, discharge effectiveness sufficient in this range is acquired [that what is necessary is just to choose the

loadings suitably with the class of synthetic system textile materials set as the object of discharge, and target extent of discharge] that guanidine carbonate should just be preferably blended 0.5 to 40% of the weight 0.1 to 50% of the weight into the print paste.

[0008] What is conventionally used as adsorbate can be used as adsorbate used by this invention, for example, metallic oxides, such as mineral products, such as talc and a kaolin, and an aluminum oxide, activated carbon, the ceramics, metal powder, etc. are mentioned. The discharging agent of this invention is usually used, adjusting to the form of the print paste blended with the stock paste. It is not limited especially as a stock paste for adjusting a print paste, but the stock paste used for the various usual print pastes can be chosen suitably, and can be used. For example, natural thickening agents, such as starch, gum arabic, crystal rubber, a tamarind, and sodium alginate, Carboxymethyl fibrin soda, the PUROI oxycellulose, alginate, A Cyamopsis Gum ethyleneoxide addition product, ethyl cellulose, methyl cellulose, Processing thickening agents, such as British gum, polyacrylate, a polyacrylic acid derivative, Polyvinyl acetate, an acrylic ester-vinyl acetate copolymer, polyvinyl alcohol, A polyvinyl butyral, polyurethane, a polymer lane acid copolymer salt, It is respectively independent in various thickening agents, such as inorganic system thickening agents, such as synthetic stabilizers, such as a nonionic surface active agent, a synthetic-resin emulsion, diatomaceous earth, and silicic-acid colloid, or two or more sorts are mixed. It can use as a thickening agent and the mixture of what added this to water or an organic solvent, and was made into a solution or dispersion liquid, the thing made into the mucus emulsion of water and a petroleum solvent, and said two persons etc. can use the stock paste used from the former.

[0009] Into the above-mentioned stock paste, the usual drugs for dyeing, such as a color, a pigment, a surfactant, a reduction inhibitor, a sequestering agent, an extending agent, a desiccant, a penetrating agent, an electrolyte, fats and oils, a fluorescent brightener, antiseptics, an ultraviolet ray absorbent, and an antioxidant, can be suitably blended if needed besides the discharging agent of this invention. The disperse dye and reactive dye of a quinone system and a kino FUTARON system are used with the color to which it is especially desirable to use the color of arbitration and **** can bear alkali as a color which can be blended.

[0010] The print of the print paste to a textile can be performed by the approach of the arbitration currently performed conventionally, and can be mostly printed from the partial print of a pattern etc. to arbitration to an entire print. Moreover, other print sections and parts may be printed in piles. Next, after carrying out predrying if needed, dry heat or moist heat treatment is performed. The approach of it not being limited, for example, giving baking, using oven and a drier as a dry-heat-treatment method, the method of giving baking using a heat press machine, etc. can be used especially for the method of performing these processings, and the approach of giving steaming, using HT steamer etc. as a moist-heat-treatment method etc. can be used for it. Although it changes also with classes of synthetic target system textile materials and there is no ***** generally about processing conditions, desirable effectiveness can be acquired if processing for 30 seconds - about 30 minutes is performed at the temperature of about 90-200 degrees C also in which approach. Then, if needed, after treatment, such as rinsing and soaping, is performed to a processing ingredient, and it dries into it.

[0011] Though natural, usual dyeing or usual textile-printing processing can also be performed to the synthetic system textile materials by this invention by which discharge processing was carried out after discharge processing. It is also possible to give the various advanced design effectiveness with the shank in the shank in discharge processing, a hue, the further dyeing, or textile-printing processing and combination with a hue. As synthetic system textile materials used for this invention, textiles and knitting made from polyester fiber, polyamide fibers and these fiber, and a bicomponent fiber with cotton, rayon, silk, acetate, etc., a piloerection cloth, a nonwoven fabric, etc. are mentioned.

[0012] [Example] Hereafter, although an example explains this invention concretely, this invention is not limited at all by these. The "section" in an example and the example of a comparison expresses the "weight section."

Creation of a trial cloth Sample-offering cloth: Polyester piloerection cloth (a white cloth, refinement riser)
Dyeing bath: Color (C. I. Dispers Blue 73) 1.0%o.w.f. RM-EX (a distributed level dyeing agent, product made from Japanese Flower Chemistry) 0.5g/l. 90% acetic acid 0.1g/l. Bath Ratio: 1:20 Dyeing conditions: Carry out a temperature up by part for 2-degree-C/, at 130 degrees C, rinse and soap after that [maintenance] for 30 minutes, dry, and consider as a trial cloth.

[0013] The guanidine carbonate 15 section, the activated carbon 10 section, the disperse dye (C. I. Disperse Red 92) 2 section, and the water 13 section were mixed in the stock paste 60 section which consists of the example 1 knickerbockers gum AL (sodium alginate, product made from Japanese Flower Chemistry) 3 section, and the water 57 section, and the red print paste was prepared in it. On the polyester piloerection cloth dyed the aforementioned blue, this print paste was printed in the shape of a shank, and it dried. Subsequently, steaming processing for 7 minutes was

performed at 180 degrees C using HT steamer (HT-3 -550 mold: product made from Tsujii Stain Machine Industry), and it dried through rinsing and soaping after that. The deposit efficiency over the polyester pilorection cloth of a print paste was an average of 120 % of the weight.

[0014] The print section was ****(ed) and the polyester pilorection cloth obtained in this way was what presents the solid shank in which the crevice was dyed red and the blue of heights remained by having discharged.

In example 2 example 1, discharge processing was carried out like the example 1 except having replaced with the activated carbon 10 section and having used the kaolin 10 section.

[0015] It was the same as that of an example 1, the print section was ****(ed), and the polyester pilorection cloth obtained in this way was what presents the solid shank in which the crevice was dyed red and the blue of heights remained by having discharged.

The guanidine carbonate 15 section, the kaolin 10 section, the disperse dye (C. I. Disperse Red 92) 2 section, and the water 13 section were mixed in the stock paste 60 section which consists of the three A(modified starch, product made from Japanese Flower Chemistry) example 3 knickerbockers gum 6 section, and the water 54 section, and the red print paste was prepared in it. On the polyester pilorection cloth dyed the aforementioned blue, this print paste was printed in the shape of a shank, and it dried. Subsequently, steaming processing for 7 minutes was performed at 180 degrees C using HT steamer (HT-3 -550 mold: product made from Tsujii Stain Machine Industry), and it dried through rinsing and soaping after that. The deposit efficiency over the polyester pilorection cloth of a print paste was an average of 110 % of the weight.

[0016] It was the same as that of an example 1, the print section was ****(ed), and the polyester pilorection cloth obtained in this way was what presents the solid shank in which the crevice was dyed red and the blue of heights remained by having discharged.

In example of comparison 1 example 3, discharge processing was carried out like the example 3 except having replaced with the guanidine carbonate 15 section and having used the sodium-hydroxide water-solution 15 section 48%.

[0017] Although the polyester pilorection cloth by which discharge processing was carried out was obtained in this processing, edging of the discharge section was inadequate and red discoloration was also large. Although the edging effectiveness became large when the addition of a sodium hydroxide was increased, it became impossible to maintain the viscosity of a print paste.

[0018]

[Effect of the Invention] According to this invention, it has the sharp pattern and the concavo-convex pattern in the mold case, and there is no color discoloration in colored glue, the pedicel which has a clear hue is formed, and insurance can be simply provided with discharge processing composition system textile materials excellent in design nature.

[Translation done.]